



HOR. SIDEWALL & RECESSED HOR. SIDEWALL SPRINKLERS

UNIVERSAL MODEL A/Q-71

STANDARD RESPONSE, 5 mm BULB TYPE, 1/2" (15 mm) ORIFICE, 1/2" NPT**

GENERAL DESCRIPTION

The 1/2 inch (15 mm) orifice, 5 mm bulb, Universal Model A/Q-71 Horizontal Sidewall and Recessed Horizontal Sprinklers (Ref. Figure A) are automatic sprinklers of the frangible bulb type. They are "standard response - standard orifice sidewall sprinklers" intended for use in fire sprinkler systems designed in accordance with the standard installation rules recognized by the applicable Listing or Approval agency (e.g., UL Listing is based on NFPA 13 requirements).

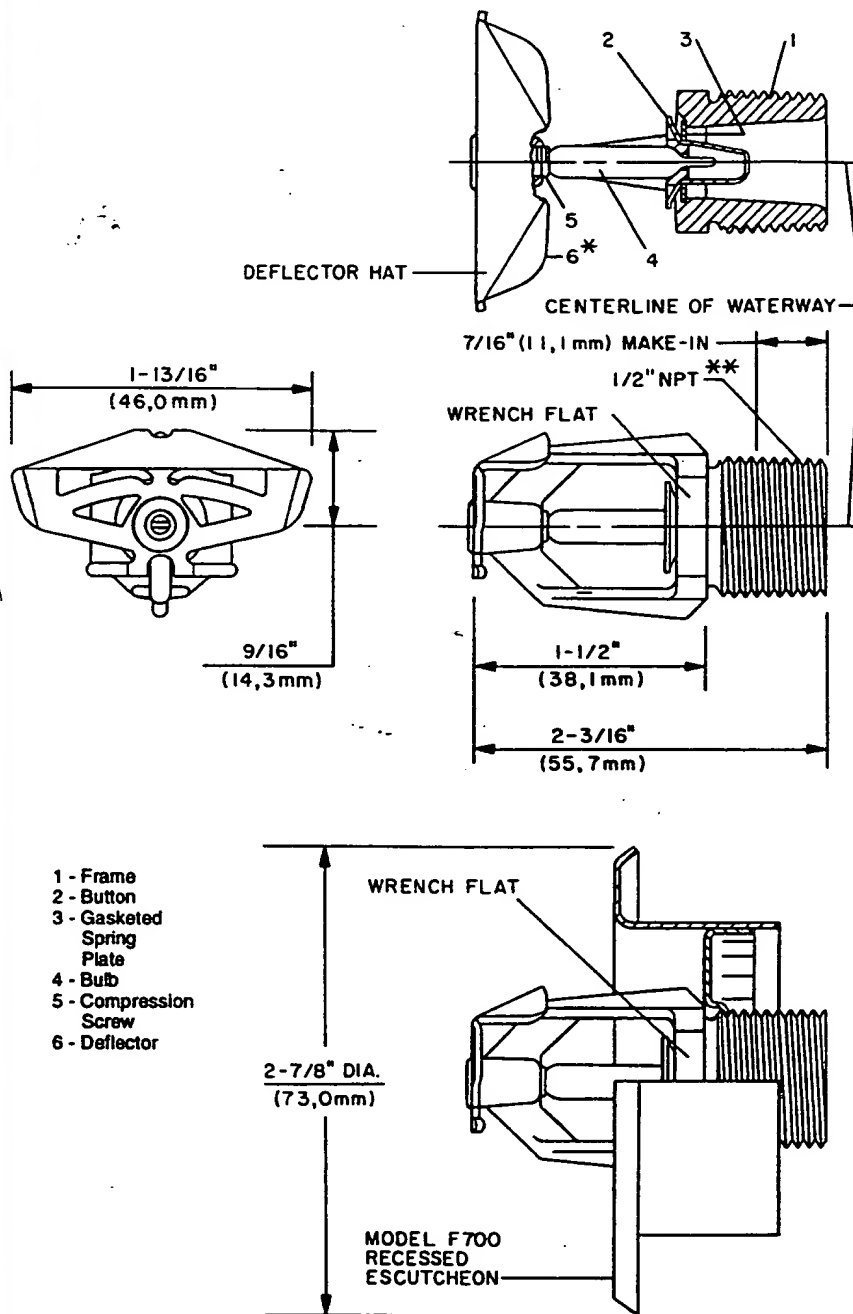
Horizontal sidewall sprinklers are generally used in lieu of pendent and upright sprinklers because of building construction or installation economy considerations. They are designed for installation along a wall or the side of a beam and just beneath a smooth ceiling. Installed with their centerline of waterway horizontal, these sprinklers produce a quarter-spherical water discharge pattern that is predominately directed downward and outward from the deflector; however, a portion of the spray is also directed towards the backwall.

The Model A/Q-71 Sprinklers feature a unique "Deflector Hat" which provides a low profile for improved aesthetics.

The recessed versions of the Model A/Q-71 Horizontal Sidewall Sprinklers are obtained by utilizing the Model F700 Recessed Escutcheon (Ref. Figures A and C). The F700 Recessed Escutcheon provides 1/2 inch (12,7 mm) of recessed adjustment or up to 3/4 inch (19,1 mm) of adjustment from the flush sidewall position.

The F700 has a separable two-piece design which allows installation of the sprinklers and pressure testing of the fire protection system, prior to wall construction and/or application of a finish coat to the wall. They also permit refinishing of a wall surface without having to first shut down the fire protection system and remove the sprinklers.

The adjustment provided by the F700 substantially reduces the accuracy to which the length of fixed pipe nipples to the sprinklers must be cut. Also, the



* Temperature rating is indicated on deflector or adjacent to orifice seat on frame.

** Pipe thread connections per ISO 7/1 can be provided on special request.

FIGURE A
1/2 INCH ORIFICE MODEL A/Q-71
HORIZONTAL SIDEWALL SPRINKLERS AND
RECESSED HORIZONTAL SIDEWALL SPRINKLERS

TYPE	TEMPERATURE RATING	BULB LIQUID COLOR	SPRINKLER FINISH		
			NATURAL BRASS	CHROME PLATED	POLYESTER COATED (All Colors)
HORIZONTAL SIDEWALL (See Note 7)	135°F/57°C	Orange	1, 2, 3, 4, 5, 6		
	155°F/68°C	Red			
	175°F/79°C	Yellow			
	200°F/93°C	Green			
	286°F/141°C	Blue			
	360°F/182°C	Mauve	1, 2, 4, 5, 6		
RECESSED HORIZONTAL SIDEWALL (See Notes 7 & 8)	135°F/57°C	Orange	1, 2, 5, 6		
	155°F/68°C	Red			
	175°F/79°C	Yellow			
	200°F/93°C	Green			

NOTES:

1. Listed by Underwriters Laboratories, Inc. for use in Light or Ordinary Hazard Occupancies.
2. Listed by Underwriters' Laboratories of Canada for use in Light or Ordinary Hazard Occupancies.
3. Approved by Factory Mutual Research Corporation for use in Light Hazard Occupancies.
4. Approved by the Loss Prevention Council (United Kingdom).
5. Approved by the Scientific Services Laboratory (Australia).
6. Accepted by the City of New York under MEA 241-94-E.
7. UL and ULC Listings, as well as FM, SSL, and NYC Approvals, are based on a deflector-to-ceiling distance of 4 to 12 inches (100 to 300 mm), whereas LPC Approval is based on 4 to 6 inches (100 to 150 mm). The top of the Deflector Hat, to which these dimensions apply, is 9/16 inch (14,3 mm) above the centerline of waterway (Ref. Figure A).
8. Listings and approvals are based on an installation with the 1/2" (15 mm) Model F700 Recessed Escutcheon.

TABLE A
LABORATORY LISTINGS AND APPROVALS

Closure has a 1/2 (12,7 mm) wide flange which provides ample clearance for covering the mounting hole.

APPROVALS AND STANDARDS

Laboratory listings and approvals for the 1/2 inch (15 mm) orifice Model A/Q-71 Horizontal Sidewall Sprinklers and Recessed Horizontal Sprinklers are given in Table A.

WARNING

The 1/2 inch orifice Model A/Q-71 Horizontal Sidewall Sprinklers and Recessed Horizontal Sidewall Sprinklers described herein must be installed and maintained in compliance with this document, as well as applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or manufacturer should be contacted relative to any questions.

Installation of Model A/Q-71 Horizontal Sidewall Sprinklers in recessed escutcheons other than the

F700 will void all sprinkler warranties, as well as possibly void the sprinkler's Approvals and/or Listings.

TECHNICAL DATA

The 1/2 inch (15 mm) orifice Model A/Q-71 Horizontal Sidewall and Recessed Horizontal Sidewall Sprinklers are rated for use at a maximum service pressure of 175 psi (12,1 bar). They are to be installed in accordance with the deflector-to-ceiling distance specifications indicated in Table A, and the standard installation rules recognized by the applicable Listing or Approval agency. The sprinklers are available in the temperature ratings and finishes indicated in Table A.

Recessed versions of the Model A/Q-71 Sprinkler are obtained by utilizing the Model A/Q-71 Horizontal Sidewall Sprinkler in combination with the Model F700 Recessed Escutcheon. The F700 Escutcheons are available with a chrome plated finish or a color coated finish in any color.

The nominal discharge curve plotted in Figure B represents the flow "Q" in GPM (LPM) as determined by the following formula:

$$Q = K\sqrt{p}$$

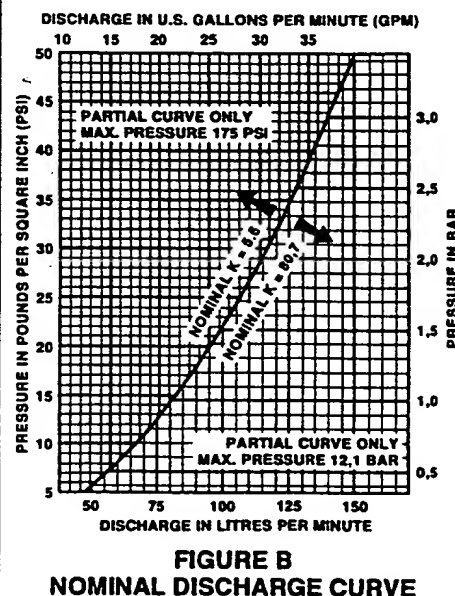


FIGURE B
NOMINAL DISCHARGE CURVE

where the nominal discharge coefficient "K" equals 5.6 (80,7); and, "p" equals the residual flowing pressure in psi (bar). Listing standards permit the actual value of "K" to vary from 5.3 to 5.8 (76,4 to 83,6); however, for hydraulic calculations, a K-factor of 5.6 (80,7) is to be applied.

The Frame of the Model A/Q-71 Sprinkler (Ref. Figure A), is bronze per ASTM B176 (C87800) or, a proprietary

FULLY RECESSED DIMENSIONS†

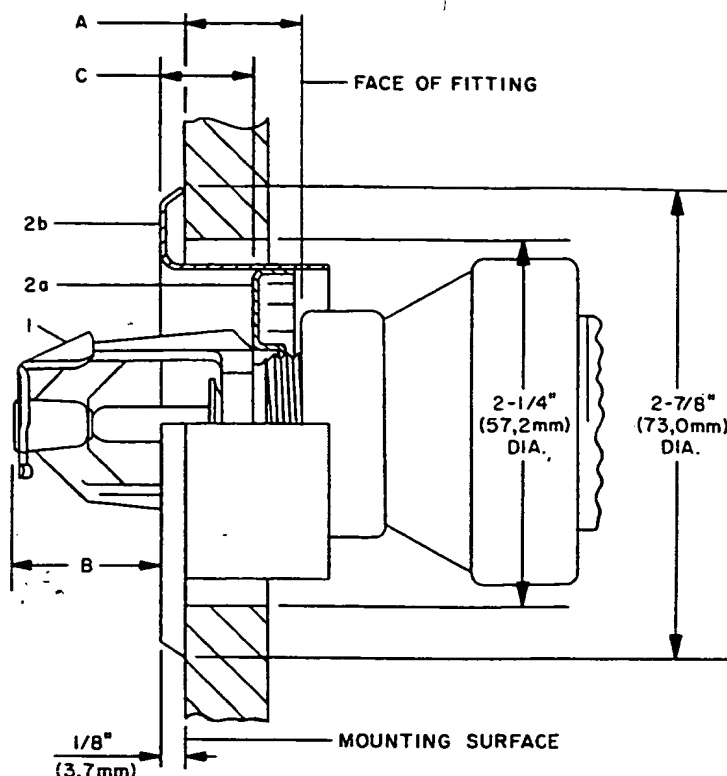
Up to 1/2 inch adjustment from
minimum 1/4 inch to maximum
3/4 inch recessed position.

Dim.	Inches	mm
A-	5/8±1/8††	15,9±3,2
B-Min.	3/4	19,1
B-Nom.	1	25,4
B-Max.	1-1/4	31,8
C-Min.	1/4	6,4
C-Max.	3/4	19,1

HIGH ADJUSTMENT DIMENSIONS

Up to 3/4 inch adjustment from
the flush sidewall position to
3/4 inch recessed position.

Dim.	Inches	mm
A-	1/2±1/4††	12,7±6,4
B-Min.	3/4	19,1
B-Nom.	1-1/8	28,6
B-Max.	1-1/2	38,1
C-Min.	FLUSH	—
C-Max.	3/4	19,1



† For best overall appearance.

†† Remaining 1/4 inch (6,4 mm) of
adjustment can be used to compensate
for variations in sprinkler make-in and
fitting take-out.

- 1- Model A/Q-71 Horizontal Sidewall Sprinkler
2- Model F700 Recessed Escutcheon
a- Mounting Plate
b- Closure

FIGURE C
MODEL A/Q-71 RECESSED HORIZONTAL SIDEWALL SPRINKLER
WITH TWO-PIECE MODEL F700 RECESSED ESCUTCHEON

alloy designated as QM. The Button (bulb retainer) is phosphor bronze per ASTM B103 (C51000 or C52100). The Gasketed Spring Plate consists of a Beryllium Nickel (N03360) disc spring that is sealed on both its inside and outside faces with a Teflon† gasket. The Compression Screw is bronze per ASTM B140 (C31400), and the Deflector is phosphor bronze (C51800). These Model A Sprinklers utilize a 5 mm diameter frangible bulb. Table A indicates the bulb liquid color as a function of temperature rating.

The F700 Recessed Escutcheon provided for use with the Model A/Q-71 Horizontal Sidewall Sprinkler (Ref. Figure C) has a Closure and Mounting Plate fabricated from low carbon steel. The Mounting Plate prongs, which are compressed back into the Mounting Plate as the Closure is pushed over it, maintain a tight friction fit between the two pieces. The Mounting Plate and Closure can also swivel relative to each other and compensate for minor non-perpendicularity between the Model A Sprinkler and the wall.

INSTALLATION

NOTES

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontal, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1,6 mm) for the 135°F/57°C to 3/32 inch (2,4 mm) for the 360°F/182°C rating. (At higher ambient temperatures, the bubble may be barely perceptible for the lower temperature ratings.)

Installation of Model A/Q-71 Horizontal Sidewall Sprinklers in recessed escutcheons other than the F700 will void all sprinkler warranties, as well as possibly void the sprinkler's Approvals and/or Listings.

The Model A/Q-71 Horizontal Sidewall Sprinklers must be installed in accordance with the following instructions.

1. Prior to installing the sprinklers and if applicable, verify that the face of the sprinkler fitting is within the proper range of distance which can

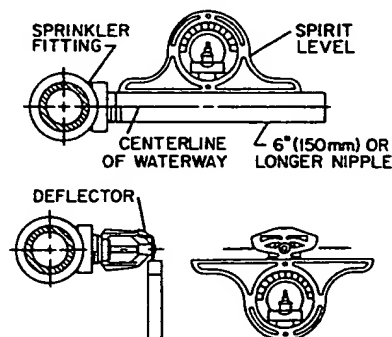


FIGURE D
LEVELING OF
SPRINKLER FITTING
AND DEFLECTOR

be accommodated by the type of escutcheon being used.

When installing a Model A/Q-71 Horizontal Sidewall Sprinkler with the F700 Recessed Escutcheon, for best overall appearance, use Dimension A indicated under the "Fully Recessed Dimensions" heading of Figure C. Otherwise, use Dimension A under the "High Adjustment Dimensions" heading. In either case,

† DuPont Registered Trademark

SELECTION:

Select the appropriate wrench based on the following requirements:

- A. Model A/Q-71 Sprinklers with a natural brass or chrome plated finish and where the Wrench Flats (as shown in Figure A) are accessible, may be installed with an 8 or 10 inch adjustable Crescent type wrench or the Model F850 Sprinkler Wrench.
- B. Model A/Q-71 Sprinklers with a polyester coated finish must only be installed with the Model F850 Sprinkler Wrench.
- C. Model A/Q-71 Recessed Sprinklers which are to be installed after completion of the wall must be installed with the Model F850 Sprinkler Wrench.

USE:

When using an 8 or 10 inch adjustable Crescent type wrench, the wrench is to be applied to the sprinkler wrench flats only (Ref. Figure A).

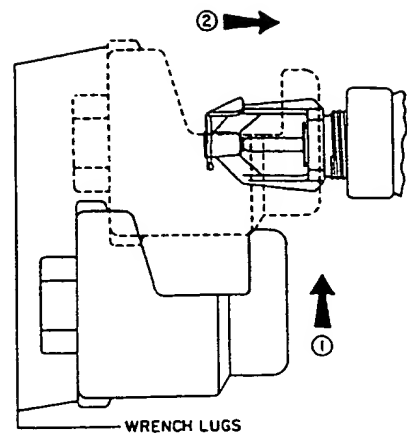
To use the F850 Sprinkler Wrench, slip the Wrench opening over the Model A/Q-71 Sprinkler Deflector by passing the Sprinkler Wrench up from beneath the sprinkler as shown in the adjacent illustration.

Using a 1/2 inch ratchet drive or by applying an 8 or 10 inch adjustable wrench to the hex end of the Sprinkler Wrench, tighten the sprinkler into the fitting. The two lugs located on opposite sides of the Wrench indicate the orientation of the sprinkler frame arms.

NOTE

Push on the Sprinkler Wrench, while it is being turned, to ensure that the Wrench recess stays fully engaged with the sprinkler wrench flats.

Carefully remove the Sprinkler Wrench by disengaging it from the sprinkler wrench flats, and then lowering it down over the sprinkler deflector.



Model F850 Nylon Coated Sprinkler Wrench

FIGURE E
SPRINKLER WRENCH SELECTION AND USE

the remaining escutcheon plate adjustment can then be used to compensate for the possible manufacturing variations in the take-out of the fittings, as well as in the make-in of the sprinklers (as permitted by ANSI B1.20.1).

2. The Model A/Q-71 Horizontal Side-wall Sprinklers must be installed with the centerline of waterway horizontal and perpendicular to a backwall surface, and the deflector-to-ceiling distance is to be 4 to 12 inches (100 to 300 mm).

It is recommended that a lightweight spirit level (less than 1 pound), be used to level the sprinkler fitting, as shown in Figure D and that a square be used to check perpendicularity of the waterway centerline to the mounting surface.

3. After installing the F700 Mounting Plate (or other escutcheon, as applicable), over the sprinkler threads, apply pipe thread sealant sparingly to the sprinkler threads only. Use of a Teflon[®] based pipe thread sealant is recommended.
4. Hand tighten the sprinkler into the sprinkler fitting.
5. Refer to Figure E and select the appropriate Sprinkler Wrench for tightening the sprinkler into the sprinkler fitting. The word "TOP" on the Deflector must face upwards towards the ceiling.

The F850 Sprinkler Wrench must be used for installing polyester coated sprinklers, in order to prevent damage to the sprinkler finish.

NOTES

A leak tight 1 1/2 inch NPT sprinkler joint should be obtained with a torque of 7 to 14 ft. lbs. (9,5 to 19,0 Nm). A maximum of 21 ft. lbs. (28,5 Nm) of torque is to be used to install the sprinkler. Higher levels of torque may distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

Do not attempt to make-up for insufficient adjustment in the escutcheon plate by under- or over-tightening the sprinkler. Readjust the position of the sprinkler fitting to suit.

It is recommended that a spirit level be used to level the sprinkler Deflector, as shown in Figure D.

6. In recessed horizontal sidewall sprinkler installations, after the wall has been installed or the finish coat has been applied, slide on the F700 Closure over the Model A Sprinkler and push the closure over the Mounting Plate until its flange comes in contact with the wall.

CARE AND MAINTENANCE

Automatic sprinklers must never be shipped or stored where their temperatures will exceed 100°F/38°C and they must never be painted, plated, coated or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

Care must be exercised to avoid damage to the sprinklers — both before and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb (ref. Installation Section Note).

NOTES

Absence of an escutcheon, which is used to cover a clearance hole, may delay the time to sprinkler operation in a fire situation.

Before closing a fire protection system control valve for maintenance work on the fire protection system which it controls, permission to shut down the affected fire protection system must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

It is recommended that automatic sprinkler systems be inspected quarterly by a qualified Inspection Service.

WARRANTY

Seller warrants for a period of one year from the date of shipment (warranty period) that the products furnished hereunder will be free from defects in material and workmanship.

For further details on Warranty, see Price List.

ORDERING PROCEDURE

A Product Symbol Number (PSN) is not specified when ordering polyester coated Model A/Q-71 Sprinklers with other than a white color; when ordering color coated Model F700 Recessed Escutcheons with other than a white color; or when ordering sprinklers with thread connections per ISO 7/1. It is suggested that a color chip be provided when ordering special color finishes. Otherwise, responsibility for duplication cannot be accepted.

Contact your local distributor for availability.

Sprinkler Assemblies:

Specify: 1/2" orifice, (specify temperature rating), Model A/Q-71 Standard Response Horizontal Sidewall Sprinkler with (specify type of finish), PSN (specify from Table B).

"Special Order"

Sprinkler Assemblies with ISO 7/1

Thread Connections:

Specify: 1/2" orifice, (specify temperature rating), Model A/Q-71 Standard Response Horizontal Sidewall Sprinkler with (specify type of finish) and with thread connection per ISO 7/1.

Recessed Escutcheon:

Specify: 1/2" (15 mm) Model F700 Recessed Escutcheon with (specify finish), PSN (specify).

1/2" (15 mm) F700
 Chrome Plated PSN 56-701-9-010
 1/2" (15 mm) F700
 White Color
 Coated PSN 56-701-4-010

Sprinkler Wrench:

Specify: Model F850 Sprinkler Wrench, PSN 56-850-4-001.

PSN 57 — XXX — X — XXX

				TEMPERATURE RATING	
578	SR HORIZONTAL SIDEWALL	1	NATURAL BRASS	135	135°F/57°C
		4	WHITE POLYESTER	155	155°F/68°C
		9	CHROME PLATED	175	175°F/79°C
				200	200°F/93°C
				286	286°F/141°C
				360	360°F/182°C

TABLE B
PRODUCT SYMBOL NUMBER SELECTION
1/2 INCH ORIFICE MODEL A/Q-71 STANDARD RESPONSE
HORIZONTAL SIDEWALL SPRINKLERS

WEIGHT

The nominal weights are as follows.

1/2" Orifice Model A/Q-71
 Horizontal Sidewall
 Sprinkler 2.3 ozs. (66 g)
 1/2" Model F700
 Recessed Escutcheon 1.2 ozs. (35 g)
 Model F850
 Sprinkler Wrench 15.5 ozs. (440 g)

PATENTS

Patents are pending with regard to design features of the Model A/Q-71 Standard Response Horizontal Sidewall and Recessed Horizontal Sprinklers.



HOR. SIDEWALL & RECESSED HOR. SIDEWALL SPRINKLERS UNIVERSAL MODEL A/Q-71

QUICK RESPONSE, 3 mm BULB TYPE, 1/2" (15 mm) ORIFICE, 1/2" NPT**

GENERAL DESCRIPTION

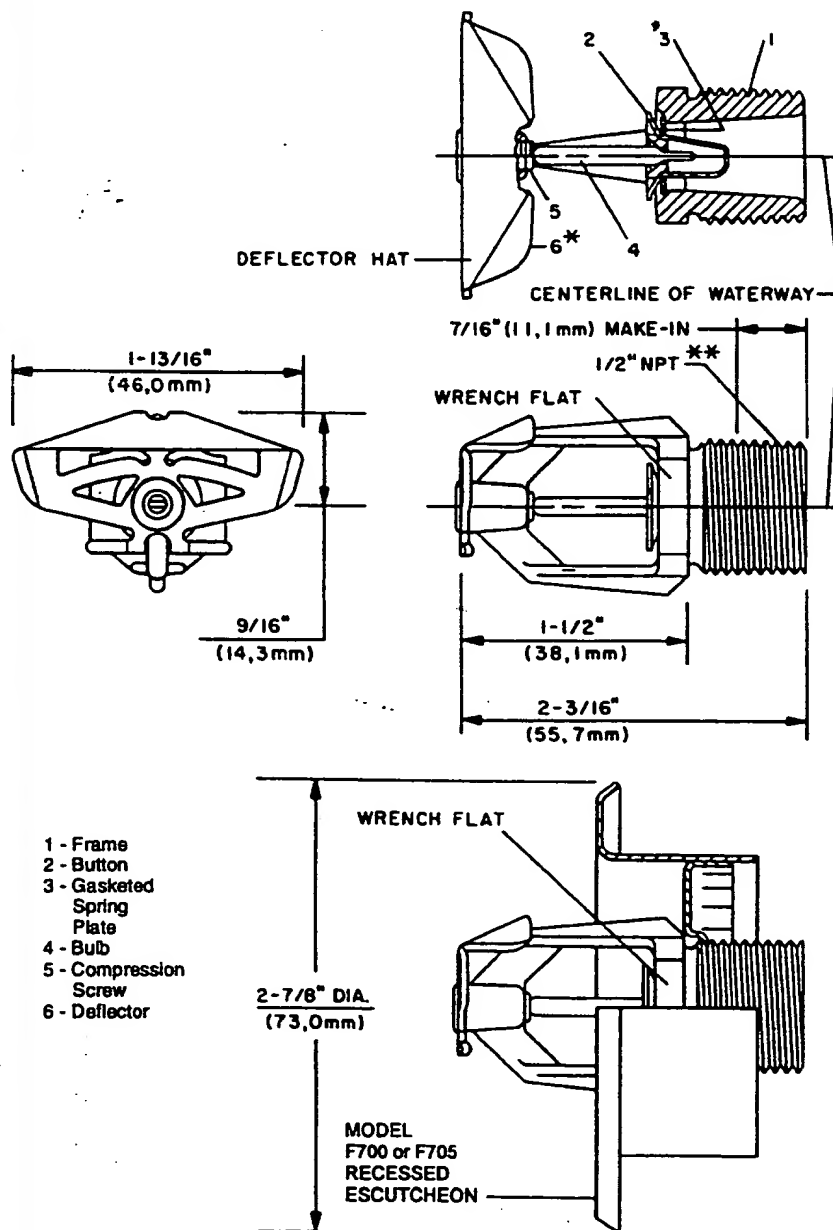
The 1/2 inch (15 mm) orifice, 3 mm bulb, Universal Model A/Q-71 Quick Response Horizontal Sidewall and Recessed Horizontal Sprinklers (Ref. Figure A) are automatic sprinklers of the frangible bulb type. They are "quick response - standard orifice sidewall sprinklers" intended for use in fire sprinkler systems designed in accordance with the standard installation rules recognized by the applicable Listing or Approval agency (e.g., UL Listing is based on NFPA 13 requirements).

Horizontal sidewall sprinklers are generally used in lieu of pendent and upright sprinklers because of building construction or installation economy considerations. They are designed for installation along a wall or the side of a beam and just beneath a smooth ceiling. Installed with their centerline of waterway horizontal, these sprinklers produce a quarter-spherical water discharge pattern that is predominately directed downward and outward from the deflector; however, a portion of the spray is also directed towards the backwall.

The Model A/Q-71 Sprinklers feature a unique "Deflector Hat" which provides a low profile for improved aesthetics.

The recessed versions of the Model A/Q-71 Horizontal Sidewall Sprinklers are obtained by utilizing either the Model F700 or F705 Recessed Escutcheon (Ref. Figures A and C). The Recessed Escutcheons have a separable two-piece design which allows installation of the sprinklers and pressure testing of the fire protection system, prior to wall construction and/or application of a finish coat to the wall. They also permit refinishing of a wall surface without having to first shut down the fire protection system and remove the sprinklers.

The horizontal adjustment provided by the Recessed Escutcheons substantially reduces the accuracy to which the length of fixed pipe nipples to the sprinklers must be cut. Also, the Closure has a 1/2 inch (12,7 mm) wide



- * Temperature rating is indicated on deflector or adjacent to orifice seat on frame.
- ** Pipe thread connections per ISO 7/1 can be provided on special request.

FIGURE A
1/2 INCH ORIFICE MODEL A/Q-71
QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLERS AND
RECESSED HORIZONTAL SIDEWALL SPRINKLERS

TYPE	TEMPERATURE RATING	BULB LIQUID COLOR	SPRINKLER FINISH		
			NATURAL BRASS	CHROME PLATED	POLYESTER COATED (All Colors)
HORIZONTAL SIDEWALL	135°F/57°C	Orange	1, 2, 3, 4, 5, 6		
	155°F/68°C	Red			
	175°F/79°C	Yellow			
	200°F/93°C	Green			
	286°F/141°C	Blue			
RECESSED HORIZONTAL SIDEWALL with F700 ESCUTCHEON	135°F/57°C	Orange	1, 2, 4, 5, 6		
	155°F/68°C	Red			
	175°F/79°C	Yellow			
	200°F/93°C	Green			
RECESSED HORIZONTAL SIDEWALL with F705 ESCUTCHEON	135°F/57°C	Orange	1, 2, 3, 4, 5, 6		
	155°F/68°C	Red			
	175°F/79°C	Yellow			
	200°F/93°C	Green			

NOTES:

1. Listed by Underwriters Laboratories, Inc. as Quick Response Sprinklers for use in Light or Ordinary Hazard Occupancies.
2. Listed by Underwriters' Laboratories of Canada as Quick Response Sprinklers for use in Light or Ordinary Hazard Occupancies.
3. Approved by Factory Mutual Research Corporation as Quick Response Sprinklers for use in Light Hazard Occupancies.
4. Approved by the Loss Prevention Council (United Kingdom) as Quick Response Sprinklers.
5. Approved by the Scientific Services Laboratory (Australia) as Quick Response Sprinklers.
6. Accepted by the City of New York under MEA 241-94-E as Quick Response Sprinklers.
7. UL and ULC Listings, as well as FM, SSL, and NYC Approvals, are based on a deflector-to-ceiling distance of 4 to 12 inches (100 to 300 mm), whereas LPC Approval is based on 4 to 6 inches (100 to 150 mm). The top of the Deflector Hat, to which these dimensions apply, is 9/16 inch (14,3 mm) above the centerline of waterway (Ref. Figure A).

TABLE A
LABORATORY LISTINGS AND APPROVALS
(See Note 7 Above)

flange which provides ample clearance for covering the mounting hole.

APPROVALS AND STANDARDS

Laboratory listings and approvals for the 1/2 inch (15 mm) orifice Model A/Q-71 Quick Response Horizontal Sidewall Sprinklers and Recessed Horizontal Sidewall Sprinklers are given in Table A.

WARNING

The 1/2 inch orifice Model A/Q-71 Quick Response Horizontal Sidewall Sprinklers and Recessed Horizontal Sidewall Sprinklers described herein must be installed and maintained in compliance with this document, as well as applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or

manufacturer should be contacted relative to any questions.

Installation of Model A/Q-71 Horizontal Sidewall Sprinklers in recessed escutcheons other than the F700 or F705 will void all sprinkler warranties, as well as possibly void the sprinkler's Approvals and/or Listings.

TECHNICAL DATA

The 1/2 inch (15 mm) orifice Model A/Q-71 Quick Response Horizontal Sidewall and Recessed Horizontal Sidewall Sprinklers are rated for use at a maximum service pressure of 175 psi (12,1 bar). They are to be installed in accordance with the deflector-to-ceiling distance specifications indicated in Table A, and the standard installation rules recognized by the applicable Listing or Approval agency. The sprinklers are available in the temperature ratings and finishes indicated in Table A.

Recessed versions of the Model A/Q-71 Sprinkler are obtained by utilizing the Model A/Q-71 Horizontal Side-

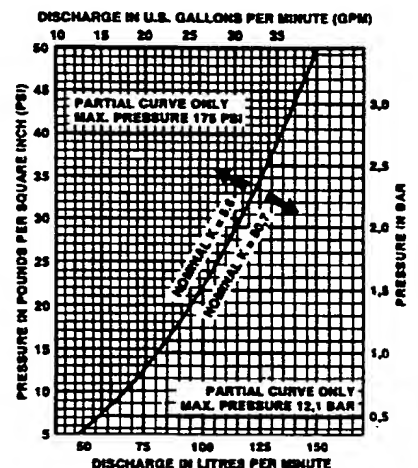


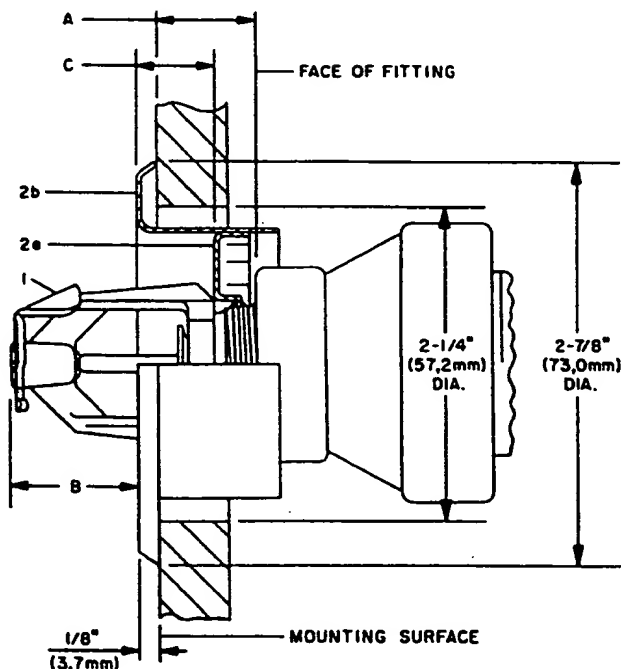
FIGURE B
NOMINAL DISCHARGE CURVE

wall Sprinkler in combination with either the Model F700 or F705 Recessed Escutcheon. The Recessed Escutcheons are available with a chrome plated finish or a color coated finish in any color.

The nominal discharge curve plotted in

MODEL F700		
FULLY RECESSED DIMENSIONS†		
Up to 1/2 inch adjustment from minimum 1/4 inch to maximum 3/4 inch recessed position.		
Dim.	Inches	mm
A-	5/8±1/8††	15,9±3,2
B-Min.	3/4	19,1
B-Nom.	1	25,4
B-Max.	1-1/4	31,8
C-Min.	1/4	6,4
C-Max.	3/4	19,1
HIGH ADJUSTMENT DIMENSIONS		
Up to 3/4 inch adjustment from the flush sidewall position to 3/4 inch recessed position.		
Dim.	Inches	mm
A-	1/2±1/4††	12,7±6,4
B-Min.	3/4	19,1
B-Nom.	1-1/8	28,6
B-Max.	1-1/2	38,1
C-Min.	FLUSH	—
C-Max.	3/4	19,1

MODEL F705		
FULLY RECESSED DIMENSIONS†		
Up to 1/4 inch adjustment from minimum 1/4 inch to maximum 1/2 inch recessed position.		
Dim.	Inches	mm
A-	1/2††	12,7
B-Min.	1	25,4
B-Nom.	1-1/8	28,6
B-Max.	1-1/4	31,8
C-Min.	1/4	6,4
C-Max.	1/2	12,7
HIGH ADJUSTMENT DIMENSIONS		
Up to 1/2 inch adjustment from the flush sidewall position to 1/2 inch recessed position.		
Dim.	Inches	mm
A-	3/8±1/8††	9,5±3,2
B-Min.	1	25,4
B-Nom.	1-1/4	31,8
B-Max.	1-1/2	38,1
C-Min.	FLUSH	—
C-Max.	1/2	12,7



† For best overall appearance.

†† Remaining 1/4 inch (6,4 mm) of adjustment can be used to compensate for variations in sprinkler make-in and fitting take-out.

- 1- Model A/Q-71 Horizontal Sidewall Sprinkler
- 2- Model F700 or F705 Recessed Escutcheon
- a- Mounting Plate
- b- Closure

FIGURE C
MODEL A/Q-71 RECESSED HORIZONTAL SIDEWALL SPRINKLER
WITH TWO-PIECE MODEL F700 OR F705 RECESSED ESCUTCHEON

Figure B represents the flow "Q" in GPM (LPM) as determined by the following formula:

$$Q = K\sqrt{p}$$

where the nominal discharge coefficient "K" equals 5.6 (80,7); and, "p" equals the residual flowing pressure in psi (bar). Listing standards permit the actual value of "K" to vary from 5.3 to 5.8 (76,4 to 83,6); however, for hydraulic calculations, a K-factor of 5.6 (80,7) is to be applied.

The Frame of the Model A/Q-71 Sprinkler (Ref. Figure A), is bronze per ASTM B176 (C87800) or, a proprietary alloy designated as QM. The Button (bulb retainer) is phosphor bronze per ASTM B103 (C51000 or C52100). The Gasketed Spring Plate consists of a Beryllium Nickel (N03360) disc spring that is sealed on both its inside and outside faces with a Teflon† gasket. The Compression Screw is bronze per ASTM B140 (C31400), and the Deflector is phosphor bronze (C51800). These Model A Sprinklers utilize a 3 mm diameter frangible bulb. Table A indicates the bulb liquid color as a function of temperature rating.

The F700 and F705 Recessed Escutcheons provided for use with the Model A Horizontal Sidewall Sprinkler (Ref. Figure C) have a Closure and Mounting Plate fabricated from low carbon steel. The Mounting Plate prongs, which are compressed back into the Mounting Plate as the Closure is pushed over it, maintain a tight friction fit between the two pieces. The Mounting Plate and Closure can also swivel relative to each other and compensate for minor non-perpendicularity between the Model A Sprinkler and the wall.

INSTALLATION

NOTES

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontal, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1,6 mm) for the 135°F/57°C to 3/32 inch (2,4 mm) for the 286°F/141°C rating. (At higher ambient temperatures, the bubble may be barely perceptible for the lower temperature ratings.)

Installation of Model A/Q-71 Horizontal Sidewall Sprinklers in recessed escutcheons other than the F700 or F705 will void all sprinkler warranties, as well as possibly void

† DuPont Registered Trademark

the sprinkler's Approvals and/or Listings.

The Model A/Q-71 Horizontal Sidewall Sprinklers must be installed in accordance with the following instructions.

1. Prior to installing the sprinklers and if applicable, verify that the face of the sprinkler fitting is within the proper range of distance which can be accommodated by the type of escutcheon being used.

When installing a Model A/Q-71 Horizontal Sidewall Sprinkler with the F700 or F705 Recessed Escutcheon, for best overall appearance, use Dimension A indicated under the "Fully Recessed Dimensions" heading of Figure C. Otherwise, use Dimension A under the "High Adjustment Dimensions" heading. In either case, the remaining escutcheon plate adjustment can then be used to compensate for the possible manufacturing variations in the take-out of the fittings, as well as in the make-in of the sprinklers (as permitted by ANSI B1.20.1).

2. The Model A/Q-71 Horizontal Sidewall Sprinklers must be installed with the centerline of waterway horizontal and perpendicular to a backwall surface.

It is recommended that a lightweight spirit level (less than 1 pound), be used to level the sprinkler fitting, as

shown in Figure D and that a square be used to check perpendicularity of the waterway centerline to the mounting surface.

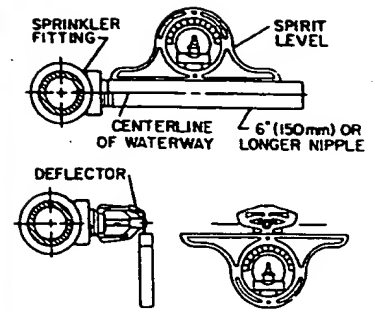
3. After installing the F700 or F705 Mounting Plate (or other escutcheon, as applicable), over the sprinkler threads, apply pipe thread sealant sparingly to the sprinkler threads only. Use of a Teflon[®] based pipe thread sealant is recommended.
4. Hand tighten the sprinkler into the sprinkler fitting.
5. Refer to Figure E and select the appropriate Sprinkler Wrench for tightening the sprinkler into the sprinkler fitting. The word "TOP" on the Deflector must face upwards towards the ceiling.

The F850 Sprinkler Wrench must be used for installing polyester coated sprinklers, in order to prevent damage to the sprinkler finish.

NOTES

A leak tight 1/2 inch NPT sprinkler joint should be obtained with a torque of 7 to 14 ft.lbs. (9,5 to 19,0 Nm). A maximum of 21 ft. lbs. (28,5 Nm) of torque is to be used to install the sprinkler. Higher levels of torque may distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

Do not attempt to make-up for in-



**FIGURE D
LEVELING OF
SPRINKLER FITTING
AND DEFLECTOR**

sufficient adjustment in the escutcheon plate by under- or over-tightening the sprinkler. Readjust the position of the sprinkler fitting to suit.

It is recommended that a spirit level be used to level the sprinkler Deflector, as shown in Figure D.

6. In recessed horizontal sidewall sprinkler installations, after the wall has been installed or the finish coat has been applied, slide on the F700 or F705 Closure over the Model A Sprinkler and push the closure over the Mounting Plate until its flange comes in contact with the wall.

SELECTION:

Select the appropriate wrench based on the following requirements:

- A. Model A/Q-71 Sprinklers with a natural brass or chrome plated finish and where the Wrench Flats (as shown in Figure A) are accessible, may be installed with an 8 or 10 inch adjustable Crescent type wrench or the Model F850 Sprinkler Wrench.
- B. Model A/Q-71 Sprinklers with a polyester coated finish must only be installed with the Model F850 Sprinkler Wrench.
- C. Model A/Q-71 Recessed Sprinklers which are to be installed after completion of the wall must be installed with the Model F850 Sprinkler Wrench.

USE:

When using an 8 or 10 inch adjustable Crescent type wrench, the wrench is to be applied to the sprinkler wrench flats only (Ref. Figure A).

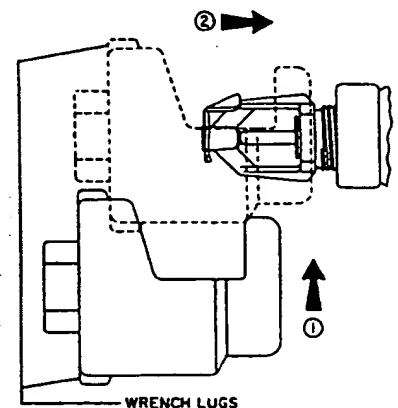
To use the F850 Sprinkler Wrench, slip the Wrench opening over the Model A/Q-71 Sprinkler Deflector by passing the Sprinkler Wrench up from beneath the sprinkler as shown in the adjacent illustration.

Using a 1/2 inch ratchet drive or by applying an 8 or 10 inch adjustable wrench to the hex end of the Sprinkler Wrench, tighten the sprinkler into the fitting. The two lugs located on opposite sides of the Wrench indicate the orientation of the sprinkler frame arms.

NOTE

Push on the Sprinkler Wrench, while it is being turned, to ensure that the Wrench recess stays fully engaged with the sprinkler wrench flats.

Carefully remove the Sprinkler Wrench by disengaging it from the sprinkler wrench flats, and then lowering it down over the sprinkler deflector.



**Model F850 Nylon Coated
Sprinkler Wrench**

**FIGURE E
SPRINKLER WRENCH SELECTION AND USE**

CARE AND MAINTENANCE

Automatic sprinklers must never be shipped or stored where their temperatures will exceed 100°F/38°C and they must never be painted, plated, coated or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

Care must be exercised to avoid damage to the sprinklers — both before and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb (ref. Installation Section Note).

NOTES

Absence of an escutcheon, which is used to cover a clearance hole, may delay the time to sprinkler operation in a fire situation.

Before closing a fire protection system control valve for maintenance work on the fire protection system which it controls, permission to shut down the affected fire protection system must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

It is recommended that automatic sprinkler systems be inspected quarterly by a qualified Inspection Service.

WARRANTY

Seller warrants for a period of one year from the date of shipment (warranty period) that the products furnished hereunder will be free from defects in material and workmanship.

For further details on Warranty, see Price List.

PSN 57 — XXX — X — XXX

378	TYPE	1	SPRINKLER FINISH	135	TEMPERATURE RATING
	QR		NATURAL BRASS	155	135°F/57°C
	HORIZONTAL	4	WHITE POLYESTER	175	155°F/68°C
	SIDEWALL	9	CHROME PLATED	200	175°F/79°C
				286	200°F/93°C
					286°F/141°C

TABLE B
PRODUCT SYMBOL NUMBER SELECTION
1/2 INCH ORIFICE MODEL A/Q-71 QUICK RESPONSE
HORIZONTAL SIDEWALL SPRINKLERS

ORDERING PROCEDURE

A Product Symbol Number (PSN) is not specified when ordering polyester coated Model A/Q-71 Sprinklers with other than a white color; when ordering color coated Recessed Escutcheons with other than a white color; or when ordering sprinklers with thread connections per ISO 7/1. It is suggested that a color chip be provided when ordering special color finishes. Otherwise, responsibility for duplication cannot be accepted.

Contact your local distributor for availability.

Sprinkler Assemblies:

Specify: 1/2" orifice, (specify temperature rating), Model A/Q-71 Quick Response Horizontal Sidewall Sprinkler with (specify type of finish), PSN (specify from Table B).

"Special Order"

Sprinkler Assemblies with ISO 7/1 Thread Connections:

Specify: 1/2" orifice, (specify temperature rating), Model A/Q-71 Quick Response Horizontal Sidewall Sprinkler with (specify type of finish) and with thread connection per ISO 7/1.

Recessed Escutcheon:

Specify: 1/2" (15 mm) Model (specify) Recessed Escutcheon with (specify finish), PSN (specify).

1/2" F700 Chrome	PSN 56-701-9-010
1/2" F700 White	PSN 56-701-4-010
1/2" F705 Chrome	PSN 56-705-9-010
1/2" F705 White	PSN 56-705-4-010

Sprinkler Wrench:

Specify: Model F850 Sprinkler Wrench, PSN 56-850-4-001.

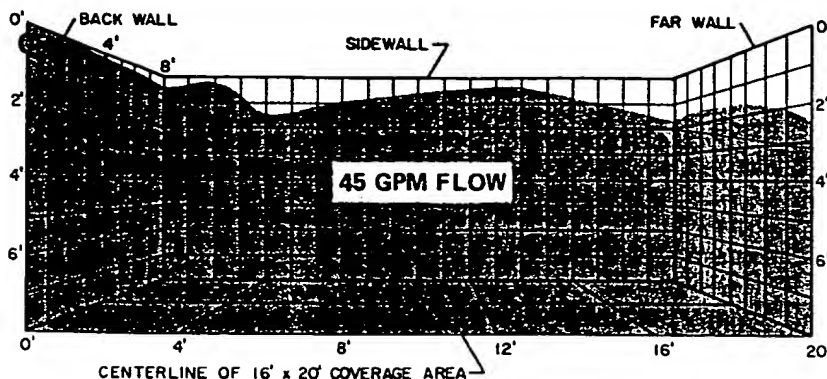
WEIGHT

The nominal weights are as follows.

1/2" Orifice Model A/Q-71 Horizontal Sidewall Sprinkler	2.3 ozs. (66 g)
1/2" Model F700 Recessed Escutcheon	1.3 ozs. (38 g)
1/2" Model F705 Recessed Escutcheon	1.2 ozs. (34 g)
Model F850 Sprinkler Wrench	15.5 ozs. (440 g)

PATENTS

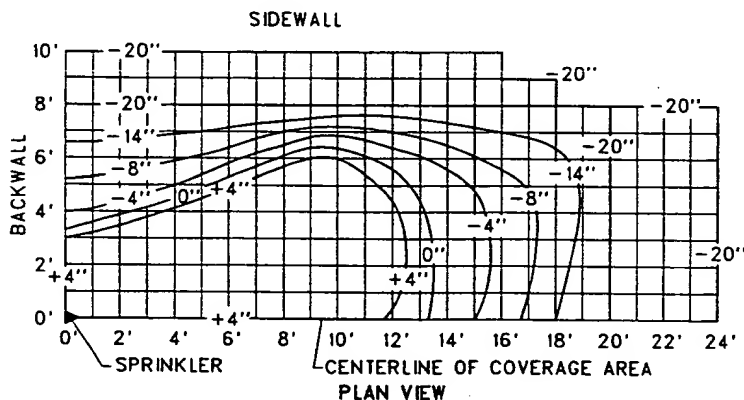
Patents are pending with regard to design features of the Model A/Q-71 Quick Response Horizontal Sidewall and Recessed Horizontal Sprinklers.



NOTES:

1. Pattern shown with no ceiling mounted obstructions.
2. See Residential Installation/Usage Criteria and Warranty Sections.
3. Data shown for centerline of sprinkler waterway to ceiling distance of 4-7/16" (112,7 mm).

FIGURE E
NOMINAL WETTING PATTERN AT MINIMUM REQUIRED
MULTIPLE SPRINKLER FLOW FOR 16' x 20' (4,9 m x 6,1m)
RESIDENTIAL APPLICATIONS



NOTES:

1. For a given position within the coverage area, ceiling mounted obstructions must not hang below the elevation dimension given in the graph.
2. Elevation dimensions are perpendicular to the plane of the Deflector Hat (ref. Fig. A), where positive (+) dimensions are above the plane of the Deflector Hat and negative (-) dimensions are below. (Reference: the Deflector Hat is 7/16" (11,1 mm) above the sprinkler centerline of waterway.)

FIGURE F
ALLOWABLE ELEVATION FOR CEILING MOUNTED OBSTRUCTIONS
SUCH AS HEATING OR AIR CONDITIONING DIFFUSERS, OVERHANGS,
AND LIGHT FIXTURES

Strut is silicone bronze per ASTM B96 (C65500), and the Deflector is brass per ASTM B36 (C22000). The Hook is phosphor bronze per ASTM B159 (C51000), the two halves of the Link Assembly are nickel, the Ejection Spring is Inconel 600 wire per ASTM B166, and the Button is brass per ASTM B36 (C22000). The Gasket material is Teflon[®], and the Spring Plate is an Inconel disc spring.

The Link Assembly has a thin, black, resin type coating which will protect the Link Assembly from deterioration which could otherwise be caused by

normal atmospheres. The coating is not intended to provide protection against attack by corrosive media.

Escutcheon Plates:

Figures B-1 and B-2, as applicable, provide wall mounting dimensions for the FR-1 Sprinkler and illustrate the use of a standard one-piece escutcheon plate like that described in Technical Data Sheet TD805.

The FR-1 Sprinklers may be installed with a split type escutcheon plate like that described in TD815. The split type plate is suitable for use with plastic

pipe fire protection systems when it is installed in accordance with the instructions given in TD815.

NOTES

The standard type escutcheon plate like that shown in Technical Data Sheet TD805 can NOT be used to hold the FR-1 in position. The FR-1 must be secured in position by firmly fastening the sprinkler system piping to the dwelling structure. If the FR-1 is not properly secured in position, reaction forces resulting from sprinkler operation could alter its orientation and water distribution pattern.

Only use escutcheon plates that will provide a deflector-to-mounting surface distance within the range specified in Figure B-1 or B-2, as applicable.

Only use escutcheon plates which consist of metallic materials that will not deform or dislodge at a temperature of less than 1200°F/649°C and/or which have been listed by Underwriters Laboratories Inc. for fire protection service.

QR-EC & EC INSTALLATION/USAGE CRITERIA

When used in QR-EC (quick response — extended coverage) or EC (extended coverage) applications, the 17/32 inch (20 mm) orifice, Model FR-1 Horizontal Sidewall Sprinklers must only be installed and utilized in Light Hazard Occupancies, under smooth ceilings and in accordance with the criteria given in Table A-1 or A-2, as applicable. The nominal wetting patterns are illustrated in Figure D for the minimum flows required for typical coverage areas.

NOTE

For coverage area dimensions less than or between those indicated in Table A-1 or A-2, it is necessary to use the minimum required flow for the next highest width (W) and length (L) for which installation criteria are stated.

Ceiling mounted obstructions such as heating or air conditioning diffusers, overhangs, and light fixtures must be located above an elevation, as shown in Figure F, where they will not interfere with the proper distribution of water by the sprinkler.

NOTE

The FR-1 Sprinklers must NOT be used with beams, joists, or ducts located within the sprinkler coverage area. They may be located along the boundaries separating adjacent sprinkler coverage areas.

RESIDENTIAL INSTALLATION/USAGE CRITERIA

When used in residential applications, per NFPA 13, 13D, or 13R, the 17/32 inch (20 mm) orifice, Model FR-1 Horizontal Sidewall Sprinklers must only be installed and utilized in accordance with the following described criteria which are provided by the manufacturer.

These restrictions relate to

- the general service conditions necessary to sprinkler performance and integrity,
- the minimum amount of water which must be discharged from an operating sprinkler,
- the maximum area which can be covered by the spray from an operating sprinkler,
- installation requirements necessary to the proper operational sensitivity of the sprinklers,
- preventing the wetting (i.e., cold soldering) of the fusible Link Assembly of a non-operated sprinkler, which is adjacent to one which has operated, and
- preventing the weakening followed by the possible release of a sprinkler's fusible Link Assembly, due to exposure to heat sources other than abnormal fire.

NOTES

1. *Residential Fire Sprinkler Systems should only be designed and installed by those competent and completely familiar with automatic sprinkler system design, installation procedures, and techniques.*
2. *Several criteria may apply to the installation and usage of each sprinkler. Consequently, it is recommended that the sprinkler system designer review and develop a working understanding of the complete list of criteria, prior to initiating the design of the sprinkler system.*
3. *Questions concerning sprinkler installation and usage criteria, which are not covered by the following instructions, should be mailed to the attention of the Technical Data Department. Include sketches and technical details, as appropriate.*
4. *In some instances, the requirements of this document may concern specifications which are more stringent and which take precedence over those specified in NFPA 13, NFPA 13D, NFPA 13R, or by the authority having jurisdiction.*

General Service Conditions

When used in residential applications,

the FR-1 Sprinklers must only be installed and utilized

1. in wet pipe automatic sprinkler systems,
2. within residential portions of any occupancy per NFPA 13, within residential "Dwelling Units" per NFPA 13D, or within residential occupancies per NFPA 13R.
3. at a maximum service pressure of 175 psi (12,1 bar),
4. at a maximum ambient temperature of 100°F/38°C,
5. with all interconnecting system piping, as well as sprinklers maintained at a minimum temperature of 40°F/4°C, and
6. with water supplies which are substantially free of contaminants and particles of a size greater than 1/8 inch (3,2mm).

Hydraulic Design Criteria

The minimum required single and multiple sprinkler flow rates are given in Table A-1 as a function of the maximum allowable coverage areas. The single sprinkler flow rate is the minimum required discharge from the most hydraulically demanding single sprinkler and, the multiple sprinkler flow rate is the minimum required discharge from each of the total number of "design sprinklers" (as specified in NFPA 13, 13D, or 13R).

NOTE

The number of sprinklers within each compartment (as defined by NFPA 13, 13D, or 13R), must be as few as possible. Do NOT use more sprinklers than necessary to cover a particular space.

Spray Coverage Criteria

Each FR-1 Sprinkler must only be used in accordance with one of the designated width by length (W x L) coverage criteria specified in Table A-1. The nominal wetting pattern for FR-1 Sprinklers at minimum required multiple sprinkler flow conditions for a 16' x 20' (4,9 m x 6,1 m) coverage area is illustrated in figure E.

Ceiling mounted obstructions such as heating or air conditioning diffusers, overhangs, and light fixtures must be located above an elevation, as shown in Figure F, where they will not interfere with the proper distribution of water by the sprinkler.

FR-1 Sprinklers may be installed along overhangs or soffits that are a maximum of 6 inches (152 mm) wide (distance from wall) and, with a maximum distance of 6 inches (152 mm) from the centerline of the sprinkler waterway to the bottom of the overhang/soffit.

NOTES

When installed along overhangs or soffits, the deflector-to-mounting surface distance must be a minimum of 2 inches (51 mm) and

a maximum of 3 inches (76 mm) (Ref. Figure B-1).

Use of overhangs and soffits wider than 6 inches (152 mm) is permitted if additional sprinkler protection is provided for the area below the overhang/soffit.

The FR-1 Sprinklers must NOT be located

- a. along a wall/partition having a recessed range oven, countertop, or alcove,
- b. along a wall/partition having an adjoining wood or coal burning stove, or
- c. along a wall/partition containing a fireplace or wall oven.

NOTE

The spray from the FR-1 is distributed radially outward from the sprinkler deflector. Sprinklers must be located such that there will NOT be any blind spaces shielded from spray by partitions or a portion of the dwelling structure.

Operational Sensitivity Criteria

The FR-1 Sprinklers must only be installed

1. beneath level ceilings,
2. beneath solid ceilings having a smooth or textured surface,
3. with a deflector-to-mounting surface distance of 2 to 6 inches (51 to 152 mm) for wall mounting and 2 to 3 inches (51 to 76 mm) for soffit mounting (Ref. Figure B-1),
4. with a deflector to ceiling distance of 4 to 8 inches (100 to 200 mm) (Ref. Table A-1), and
5. at least 4 inches (102 mm) away from an inside or outside corner.

The FR-1 Sprinklers must NOT be used

- a. beneath soffits,
- b. above or below open-gridded type suspended ceilings, or
- c. with beams, joists, or ducts located within the sprinkler coverage areas.

NOTE

Beams, joists, or ducts may be located with their centerlines along the boundaries separating adjacent sprinkler coverage areas.

It is recommended that as part of the sprinkler system design, the designer review the dwelling plans and, where appropriate, advise the owner or his representative as to the following.

1. Lintels of at least 5 inches (127 mm) in height and preferably 8 inches (203 mm) should be used over all passageways from one space to another, in order to reduce the possibility of sprinkler operations outside the fire area.

- II. Beams of at least 5 inches (127 mm) in height should be used to border each of 3 or more adjoining areas of FR-1 sprinkler coverage (within the same compartment), in order to decrease the time to first sprinkler operation as well as to reduce the possibility of multiple sprinkler operations.

Cold Soldering Criteria

With reference to Table A-1, the FR-1 Sprinklers must be located such that

1. the minimum lateral distance "B" between adjacent sprinklers is 10 ft. (3,1 m), and
2. the minimum distance "C" between sprinklers located opposite or with their waterway centerlines at 90 degrees to each other is 17 ft. (5,2 m), except where a portion of the dwelling structure or a partition will shield the spray of one sprinkler from the other.

Heat Source Criteria

The FR-1 Sprinklers must NOT be located

1. where the ambient temperature will exceed a temperature of 100°F/38°C,
2. where they will be exposed to the rays of the sun passing through glass or plastic skylights,
3. in an unventilated compartment containing a furnace or water heater,
4. within 24 inches (610 mm) of the outside edge of a ceiling mounted, downward discharging heating diffuser, or
5. above or within 24 inches (610 mm) of the left or right edges of a wall mounted, horizontal discharging diffuser.

The sprinkler system piping must NOT be

- a. run through heating ducts, or
- b. connected to the domestic hot water system.

INSTALLATION

NOTE

Residential Fire Sprinkler Systems should only be designed and installed by those competent and completely familiar with automatic sprinkler system design, installation procedures, and techniques.

The Model FR-1 Horizontal Sidewall Sprinklers must be installed in accordance with the following instructions.

1. Prior to installing each sprinkler, verify that the outer face of the mating fitting is within the proper range of distance from the wall which can be accommodated by the particular type of escutcheon plate being used. In addition, verify that the deflector-

to-mounting surface distance will be within the range specified in Figure B-1 or B-2, as applicable.

Refer to Technical Data Sheet TD815 for installation information on the Split Type Escutcheon Plate which is suitable for securing the FR-1 to its mounting surface in plastic pipe fire protection systems.

NOTE

The standard escutcheon plate like that shown in Technical Data Sheet TD805 can NOT be used to hold the FR-1 in position. The FR-1 must be secured in position by firmly fastening the sprinkler system piping to the dwelling structure. If the FR-1 is not properly secured in position, reaction forces resulting from sprinkler operation could alter its orientation and water distribution pattern.

2. The FR-1 must be installed with the centerline of the waterway parallel to the ceiling (as observed from the side) and perpendicular to the back-wall surface (as observed from the top or bottom).

NOTES

It is recommended that a combination protractor spirit level be used to properly position the sprinkler fitting as shown in Figure G and that a square be used to check perpendicularity of the waterway centerline to the mounting surface.

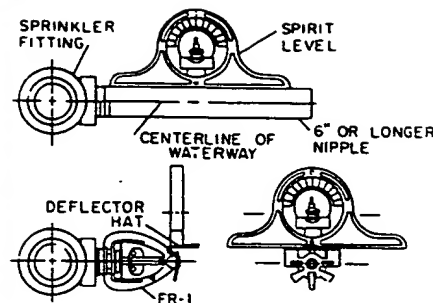
3. Use only a non-hardening type of Teflon[†] based pipe joint sealant or Teflon[†] tape and apply it sparingly to the male threads only.
4. Hand tighten the sprinkler into the sprinkler fitting.
5. Use only the Model F799 Offset Sprinkler Wrench shown in Figure H to tighten the sprinkler into the fitting. The word "TOP" on the Deflector Hat must face upwards towards the ceiling.

It is recommended that a torque of 10 to 20 ft. lbs. (13,6 to 27,1 Nm) be used to obtain a leak tight 3/4 inch NPT sprinkler joint. A radial force of 14 to 28 lbs. (19,0 to 38,0 Nm) applied to the F799 wrench will exert a torque of 10 to 20 ft. lbs. (13,6 to 27,1 Nm).

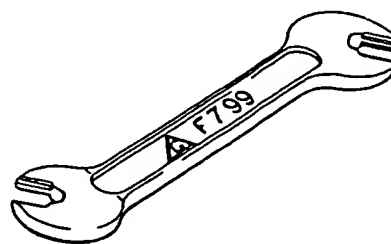
NOTES

A maximum of 30 ft. lbs. (40,7 Nm) of torque is to be used to install the sprinkler. Higher levels of torque may distort the sprinkler orifice seat with consequent leakage.

It is recommended that a spirit level be used to level the Deflector Hat, as shown in Figure G.



**FIGURE G
LEVELING OF
SPRINKLER FITTING
AND DEFLECTOR**



**FIGURE H
OFFSET SPRINKLER WRENCH**

The Deflector Hat has a raised portion at the front. Consequently, the spirit level must be carefully positioned on the rear flat portion of the Deflector Hat.

Do not attempt to make-up for insufficient adjustment in an Escutcheon Plate by under- or over-tightening the Sprinkler. Readjust the position of the sprinkler fitting to suit.

CARE AND MAINTENANCE

The FR-1 Sprinklers must never be shipped, stored, or used where their temperature will exceed 100°F/38°C and they must never be painted, plated, coated, or otherwise altered after leaving the factory. Modified or over-heated sprinklers must be replaced.

NOTE

Particular care to prevent overheating must be exercised when storing sprinklers in cars, trucks, trains, or other vehicles on warm, bright sunny days.

Care must be exercised to avoid damage to the FR-1 Sprinklers - both before and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced.

NOTES

Absence of an Escutcheon Plate, which is used to cover a clearance hole, may delay the time to sprinkler operation in a fire situation.

Before closing a fire protection system main control valve for maintenance work on the fire protection system which it controls, permission to shut down the affected fire protection systems must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

It is recommended that automatic sprinkler systems be inspected and maintained in accordance with the advice and suggestions given in NFPA 13A, NFPA 13D, and NFPA 13R, as applicable.

It is recommended that automatic sprinkler systems be inspected by a qualified inspection Service.

In residential applications, the FR-1 Sprinklers must only be replaced with horizontal sidewall sprinklers which are listed for residential fire protection service and which have the same nominal K-factor, the same coverage area, the same or lower flow ratings (as indicated under "Hydraulic Design Criteria").

All residential sprinklers installed within a compartment (as defined by the NFPA) must have the same heat response thermal characteristic, and their temperature ratings are to be within 10°F of each other.

NOTES

Wet pipe sprinkler systems must be maintained at a minimum temperature of 40°F/4°C. Exposure to freezing temperatures can result in bursting of the pipe and/or sprinkler.

Do NOT enclose sprinklers within drapes, curtains, or valances.

Do NOT hang anything from the sprinklers.

Automatic sprinklers are NOT to be tested with a heat source. Weakening or operation of the fusible Link Assembly can result.

Do NOT cleanse the sprinklers with soap and water, detergents, ammonia, cleaning fluids, or other chemicals. Remove dust, lint, cobwebs, cocoons, insects, and larvae by gently brushing with a feather duster or gently vacuuming with a soft bristle (i.e., dusting) brush attachment.

In residential applications, the minimum vertical clearance between the tops of free standing partitions, room dividers, cabinets, storage racks, stock piles, etc., and the centerline of the sprinkler waterway is NOT to be less than the clearance as given below.

Horizontal Distance from Sprinkler to Item	Vertical Clearance
---	-------------------------------

More than 9' (2,7 m)	32" (810 mm)
From 6' to 9' (1,8 to 2,7 m)	26" (660 mm)
Less than 6' (1,8 m)	18" (460 mm)

Exercise suitable safety precautions in the use and storage of highly flammable and potentially explosive materials. The rapid

rate of fire development and spread which can be caused by such materials can reduce the ability of the sprinkler system to aid in the control of a fire in which they are involved.

REMODELING

When remodeling such as by adding false beams or light fixtures or changing the location of compartment walls, first verify that the new construction will not violate the installation requirements stated under WARNINGS. After the new construction and/or the sprinkler system to suit the requirements of this document.

WARRANTY

The data provided in Figure D and E are not intended for use as a minimum wetting pattern specification.

Refer to Limited Warranty.

ORDERING PROCEDURE

140°F Sprinkler Assemblies:

Specify: 17/32 inch orifice, 140°F, Model FR-1 RES/QR-EC Horizontal Sidewall Sprinkler with (specify type) finish, PSN (specify).

Natural brass finish PSN 58-170-1-140
Chrome plated finish PSN 58-170-9-140

165°F Sprinkler Assemblies:

Specify: 17/32 inch orifice, 165°F, Model FR-1 RES/QR-EC/EC Horizontal Sidewall Sprinkler with (specify type) finish, PSN (specify).

Natural brass finish PSN 58-170-1-165
Chrome plated finish PSN 58-170-9-165

Sprinkler Wrench:

Specify: Model F799 Sprinkler Wrench, PSN 56-452-1-001.

Order for NFPA publications should be addressed to the:

Publication Sales Department
NFPA
Batterymarch Park
Quincy, MA 02269

PATENTS

The following patents are applicable to the Model FR-1 Horizontal Sidewall Sprinklers:

COUNTRY	PATENT NO.
U.S.A.	4,296,815
U.S.A.	4,296,816
U.S.A.	4,893,679
U.S.A.	4,901,799
Canada	1,170,691
Canada	1,170,692
United Kingdom	2,103,480
United Kingdom	2,103,481

LIMITED WARRANTY

The manufacturer warrants for a period of one year from the date of sale (warranty period) that the product(s) sold hereunder are free from defects in material and workmanship. Our obligation under this warranty is limited to repair or replacement, or, at our option, we will repay the price paid for the product(s), plus any transportation charge paid by the purchaser. In the case of replacement, we will pay the transportation charges to the location of the defective product. We must be given the opportunity to inspect any product you believe to be defective. To make a claim under this limited warranty, you should contact our Sales Services Manager at (401) 886-3105.

THERE ARE NO OTHER WRITTEN OR ORAL WARRANTIES. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THE DURATION OF THE LIMITED WARRANTY SET FORTH ABOVE.

The manufacturer does not assume any other obligation in connection with the sale of the product(s) by purchaser.

This warranty shall not apply to any product(s) which have been installed in violation of written instructions furnished by the manufacturer, repaired or altered, misused or damaged, or not properly maintained.

The manufacturer is not liable for indirect, incidental or consequential damages in connection with the use of the product(s).

Some states do not allow limitations on how long an implied warranty lasts, or exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.